

### REMARKS

Pending in the present application are claims 1-3, 5-16, 18-20 and 26-32, of which claims 1 and 16 are independent claims. In the Office Action, claims 1-3, 5-11, 13-16, 18-20, 26, 28, 29, 31 and 32 were rejected as indefinite under 35 U.S.C. § 112, second paragraph, and claims 1-3, 5-11, 13-16, 18-20, 29 and 31-32 were rejected under 35 U.S.C. § 103(a) as unpatentable over Aoyagi et al. (U.S. 6,222,704 B1) in view of Nakamura et al. (U.S. 6,212,043 B1). In reliance on the following remarks, the present application containing claims 1-3, 5-16, 18-20 and 26-32 is in condition for allowance, and reconsideration and notice to that effect is respectfully requested.

#### **Claim Rejections**

1. 35 U.S.C. § 112, second paragraph: Claims 1-3, 5-11, 13-16, 18-20, 26, 28, 29, 31 and 32

Claims 1-3, 5-11, 13-16, 18-20, 26, 28, 29, 31 and 32 are not indefinite under 35 U.S.C. § 112, second paragraph for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. The recitation of numerical ranges in claim limitations does not, in general, make a claim indefinite. M.P.E.P. § 2173.05(c) (“Generally, the recitation of specific numerical ranges in a claim does not raise an issue of whether a claim is definite.”). *Ex parte Slob*, which was cited in the Office Action, is inapposite to an analysis of the claims of the present application. 157 USPQ 172 (BPAI 1967). It is noted first that the claims the *Slob* court reviewed were directed to a chemical compound, specifically a powdered detergent composition, the patentability analysis of which differs significantly from apparatus claims such as those in the present application. More importantly, the *Slob* court was concerned with a claim that “in effect, recites the compounds *by what it is desired that they do rather than what they are*”, i.e., with functional claim language that in the specific context of the case rendered the claims overbroad and therefore indefinite. *Id.* at 173 (emphasis added). However, independent claims 1 and 16 are not directed at function, but rather structure. Modulus of elasticity and damping capacity are inherent physical properties of a known material. Reciting such properties in a specific structural element of an apparatus claim is not functional

and is no more indefinite than the recitation of a structural member that is, for example, flexible. If the legal proposition taken from *Ex parte Slob* and cited in the Office Action were generally applicable to all patent claims, the claim limitation “a flexible beam” would be indefinite unless it included the specific material from which the beam is made. However, the second paragraph of 35 U.S.C. § 112 makes no such requirement of patent claims. In fact, the only generally applicable test for definiteness under 35 U.S.C. 112, second paragraph, is whether “those skilled in the art would understand what is claimed when the claim is read in light of the specification.” M.P.E.P. § 2173.02 (quoting *Orthokinetics, Inc. v. Safety Travel Chairs, Inc.*, 806 F.2d 1565, 1576, 1 USPQ2d 1081, 1088 (Fed. Cir. 1986)). According to the reasoning of the Office Action, a person of ordinary skill in the art would not understand the claim limitation “a flexible beam” unless it was changed to read “a flexible stainless steel beam.” However, it is respectfully submitted that the ordinarily skilled artisan can certainly understand what is meant by a flexible beam without recitation of any specific material limitations.

2. Aoyagi et al. in view of Nakamura et al., 35 U.S.C. § 103(a): Claims 1-3, 5-11, 13-16, 18-20, 29 and 31-32

Independent claims 1 and 16 are patentable over Aoyagi et al. in view of Nakamura et al. under 35 U.S.C. § 103(a), because (a) Aoyagi et al. do not disclose the specific embodiment of a hinge comprising a laminate of stainless steel and damping materials that was attributed to the reference in the Office Action; (b) Aoyagi et al., more generally, contain no teaching directed to achieving resonance vibration absorption by balancing the stiffness and damping capacity of components in a transducing head suspension, or any specific teaching of a head suspension with a hinge (or a hinge and gimbal) component comprising a structural damping material having high stiffness and damping capacity (embodied in the claims as a modulus of elasticity greater than approximately 10 gigapascals and a damping capacity greater than approximately 0.02) that would lead one of ordinary skill in the art to the teachings of Nakamura et al.

Aoyagi et al. do not disclose the specific embodiment of a hinge comprising a laminate of stainless steel and damping materials that is attributed to the reference in the Office Action. The Office Action states that Aoyagi et al. disclose a hinge comprising stainless steel,

copper, and other materials, such as polyimide, epoxy resin, polyetherurethane, rubber, etc. However, the hinge portion of the lead layer 24 in Aoyagi et al. is specifically described as excluding stainless steel. Aoyagi et al., col. 4, lines 16-20 (“In other words, the polyimide layer 34 and the copper conductive wiring 31 *are not supported by the stainless steel plate 33 at the hinge portion 27*”) (emphasis added). Therefore, even assuming the reasoning of the Office Action is correct in calling the materials in lead layer 24 “damping materials”, Aoyagi et al. does not meet the requirements of claims 1 and 16, because it fails to disclose a hinge comprising a laminate including stainless steel.

Aoyagi et al. contain no teaching regarding features directed to achieving resonance vibration absorption by balancing the stiffness and damping capacity of specific components in the transducing head, let alone any specific teaching or suggestion of a head suspension with a hinge (or a hinge and gimbal) component comprising a structural damping material having a modulus of elasticity greater than approximately 10 gigapascals and a damping capacity greater than approximately 0.02. The Office Action states that Aoyagi et al. disclose a hinge comprising a structural damping material, because element 24 is a layered component including a base metal layer made from stainless steel (33), a conducting layer made from copper (31), and an insulating layer (34) made from materials including polyimide, epoxy resin, polyetherurethane, rubber, etc. It should be noted first that the combination of stainless steel, copper, and polyimide, epoxy resin, polyetherurethane, rubber, etc. from Aoyagi et al. does not meet the requirements of claims 1 and 16, because a laminate of such materials does not have a modulus of elasticity greater than approximately 10 gigapascals and a damping capacity greater than approximately 0.02. Moreover, the Office Action appears to interpret “structural damping material” in claims 1 and 16 as reading on any hinge including steel and any other materials. However, claims 1 and 16 make clear that the hinge is made from a material having high stiffness and damping capacity, which properties are embodied in the specific numerical ranges of modulus of elasticity and damping capacity recited. Aoyagi et al. is directed at a conventional disc drive read/write head assembly that is improved by a resilient bumper acting to prevent scratching of the disc in the event the head contacts the disc during operation. Aoyagi et al. contain no teaching, whether explicit or implicit, related to improving vibration absorption in

the head assembly by including a hinge (or hinge and gimbal) that is simultaneously high in stiffness and damping capacity. Specifically, element 24 of Aoyagi et al. is an integrated lead layer, which is neither meant to nor taught as constituting particular materials for balancing stiffness and damping capacity. Rather, element 24 contains conventional layers related to electrical functions of the head, such as the “*electrically conductive* layer 31” made from copper. Aoyagi et al., col. 4, lines 5-6 (emphasis added).

Nakamura et al., although directed at integrating damping materials into head suspension assemblies, is distinguishable from claims 1 and 16 for reasons previously explained in the Amendment filed on March 9, 2007. Specifically, Nakamura et al. do not teach or suggest either a suspension head including a hinge component comprising a first structural damping material having a modulus of elasticity greater than approximately 10 gigapascals and a damping capacity greater than approximately 0.02 **and a gimbal** component comprising a second structural damping material having a modulus of elasticity greater than approximately 10 gigapascals and a damping capacity greater than approximately 0.02 as required by claim 1, or a head suspension including a **hinge component consisting essentially of** a first structural damping material having a modulus of elasticity greater than approximately 10 gigapascals and a damping capacity greater than approximately 0.02 as required by claim 16. Therefore, it is not simply a matter of looking to Nakamura et al. to supply specific numerical values not supplied by Aoyagi et al., because Aoyagi et al. fails to teach in the first place a hinge comprising a structural damping material having a high stiffness and damping capacity. More generally, a person of ordinary skill in the art would not look in the first instance to Aoyagi et al. for solutions related to vibration absorption in head suspension assemblies and even if they did look to Aoyagi et al. there is no teaching or suggestion that would lead them to Nakamura et al., i.e., there is no disclosure whatsoever related to vibration absorption or structural damping materials having a high stiffness and damping capacity that would lead them to any specific material properties taught by Nakamura et al.

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CONCLUSION

The above remarks traverse the rejections of independent claims 1 and 16 under 35 U.S.C. §§ 112, second paragraph and under 35 U.S.C. § 103(a) based on Aoyagi et al. in view of Nakamura et al. Claims 2, 3, 5-15, 26 and 32 depend from claim 1 and are allowable therewith. Claims 18-20 and 27-31 depend from claim 16 and are allowable therewith. In addition, the combinations of features recited in claims 2, 3, 5-15, 18-20 and 26-32 are independently patentable, although this does not need to be specifically addressed herein since any claim depending from a patentable independent claim is also patentable. *See* M.P.E.P. § 2143.03 (citing *In re Fine*, 5 U.S.P.Q.2d (BNA) 1596 (Fed. Cir. 1988)). Therefore, the present application containing claims 1-3, 5-16, 18-20 and 26-32 is in condition for allowance and notice to that effect is respectfully requested.

Respectfully submitted,

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